

ISSN 1454-9166

ANNALS OF THE UNIVERSITY OF PETROSANI

MECHANICAL ENGINEERING

VOL. 9 (XXXVI) PART I

Editura UNIVERSITAS PETROŞANI – ROMANIA 2007

ISSN 1454-9166

EDITOR OF PUBLICATION

Prof.Eng. Ioan-Lucian BOLUNDUŢ Ph.D. E-mail: ibol@upet.ro

ADVISORY BOARD

Prof.Eng. Moise-Ioan ACHIM Ph.D. - "1 Decembrie 1918" University of Alba-Iulia, Romania; Prof.Eng. Ioan CARTIS Ph.D. - Politechnical University of Timisoara, Romania; Prof.Eng. Tudor CHERECHES Ph.D., Brigade General (ret.) - Military Technical Academy, Bucuresti, Romania; Prof.Eng. Sorin DIMITRIU Ph.D. - "Politehnica" University of București, Romania; Prof.Eng. Valeriu DULGHERU Ph.D. - Technical University of Moldova, Chişinău, Republic of Moldova; Prof.Eng. Alexandru FLOREA Ph.D. - University of Petroşani, Romania; Prof.Eng. Otto GRIGOROV Ph.D. -National Technical University of Kharkov, Ukraine; Prof.Eng. Anatoli GHRABCHENKO Ph.D. -National Technical University of Kharkov, Ukraine; Prof.Eng. Nicolae ILIAS Ph.D. - University of Petroşani, Romania; Prof.Eng. Ioan-Iulian IRIMIE Ph.D. - University of Petroşani, Romania; Prof.Eng. Iosif KOVACS Ph.D. - University of Petroşani, Romania; Assoc.Prof.Eng. Gábor LADÁNYI Ph.D -University of Miskolc, Hungary; Prof.Eng. Andrei MAGYARI Ph.D. - University of Petrosani, Romania; Prof.Eng. Oleksandr MIKHAYLOV Ph.D. - Donetsk National Technical; University, Ukraine; Prof.Eng. Eugen PAY Ph.D. - North University of Baia-Mare, Romania; Assoc.Prof.Eng. Eugen PĂMÎNTAȘ Ph.D. - Politechnical University of Timișoara, Romania; Romania; Prof.Eng. Octavian PRUTEANU Ph.D. - Technical University "Gh. Asachi" of Iasi, Romania; Prof.Eng. Alexei TOCA Ph.D. - Technical University of Moldova, Chisinău, Republic of Moldova; Prof.Eng. Raul R. TURMANIDZE Ph.D. - Technical University of Tbilisi, Georgia; Prof.Eng. Vlad ULMANU Ph.D. -"Petroleum-Gas" University of Ploiești, Romania; Prof.Eng. Nicolae UNGUREANU Ph.D. - North University of Baia-Mare, *Romania*; Assoc.Prof.Eng. György VŐNEKY Ph.D - University of Miskolc, *Hungary*; Prof.Eng. Vasile ZAMFIR Ph.D. - University of Petroşani, *Romania*; Prof.Eng. Gheorghe ZGURĂ Ph.D. - "Politehnica" University of București, Romania

EDITORIAL BOARD

Editor-in-chief:

Prof.Eng. Nicolae ILIAŞ Ph.D.	- University of Petroşani, Romania
Associate Editors:	
Prof.Eng. Iosif KOVACS Ph.D.	- University of Petroşani, Romania
Prof.Eng. Carmen FLOREA Ph.D.	- University of Petroșani, Romania
Prof.Eng. Iosif ANDRAŞ Ph.D.	- University of Petroşani, Romania
Prof.Eng. Marin-Silviu NAN Ph.D.	- University of Petroșani, Romania
Prof.Eng. Horia SIMASCHEVICI Ph.D.	- University of Petroşani, Romania
Conf.Eng. Iosif DUMITRESCU Ph.D.	- University of Petroşani, Romania
Editor Secretary:	
Lect.Eng. Sorin MIHĂILESCU Ph.D.	- University of Petroșani, Romania

Editorial office address:

University of Petroşani, 20 University Street, RO-332006 Petroşani, Romania, **Phone**: (40) 254/542994, 542580, 542581, 543382; **Fax**: (40) 254/543491; **Telex**: 72524 univp; **E-mail**: mihailescus@gmail.com

Contents

	1
Badoiu, D., On the Dynamics of a Manipulator with the Movement Parameters	
Imposed	
Badoiu, D., On the Synthesis of an Anthropomorphic Robot Structure	
Bele, I., Bocîi, L.S., <i>Registering and Transmiting Data System for Traction</i> <i>Vehicles</i>	
Belingher, G., Relational Data Bases Management System (RDBMS) ORACLE	
Bîrsan, M., Andronescu, E., Bîrsan, C., Ghiţulică, C., Pall, G., Preparation and Characterization of Alumina – Bioglass Composites	
Bocîi, L.S., Bele, I., Bocîi, A.D., <i>The Influence of Tunnel Factor Upon</i>	
Aerodynamics Resistance at Advancing of High Speed Trains	
Bolog, C., A General Approach for the Study of Equilibrium of Strings Under	
the Action of a Vertical Loading Function Given per Unit Length of the	
String	
Bolog, C., A General Approach for the Study of Equilibrium of Strings Under	
the Action of a Vertical Loading Function Given per Unit Length as	
Measured in the Horizontal Direction	
Bolundut, I.L., Dumitrescu, I., Classification and Design of Drilling Booms	
Bordeașu, I., Bălășoiu, V., Baciu, I.D., Bădărău, R., About Braking of Big	
Masses, Acting by Liniar Hydrostatic Motors	
Budiul-Berghian, A., Zamfir, V., Vasiu, T., Kinetic and Static Analysis at	
Unloaded Running on Mechanisms of Parallel Gang Shears' Type	
Assigned for Cutting the Metallurgical Products	
Călin, G., Trancău, M., Calculation Method for the Pressure Dropping in the	
Hydraulic System of Mechanized Pit Prop Type CMA2TE	
Călin, L., Jădăneanț, A., Gavrilă, T., Ecological Method for Storage Grains by	
Cooling Systems	
Ciortea, E.M., The Auto-Abstract of the Information Represented Through	
Conventional Signs	
Cor, P., Andras, I., Gruneanțu, I., <i>Method of Selection the Appropriate Drilling</i> Jumbo	
Cristea, D., In Situ Modal Testing Methods for Huge Structures. Application to	
Surface Mining Machines	
Darie, M., Zamfir, V., Particular Aspects on Using the Genetical Algorithms	
During the Optimal Synthesis of the Structure Belonging to Powered	
Support	
Diaconescu, G., Magyari, A., The Study Concerning the Losses that Annear	
from the Exploitation of the Gearing Pumps	
Dimirache, G., Zamfir, V., Vîrgolici, H.M., The Results of Theoretical and	
Experimental Research of the Self-Shifting of a Coal Cutter-Loader	
I J J J J G J	

3

Dinescu S. Stănilă S. The Specifical Consumption Analyse of Shearer	pag.
Cutters	121
Dumitrescu, I., Nan, M.,S., Kovacs, I., Jula D., Mihăilescu S., Praporgescu G., Design of an Asymmetrical Bucket for EsRc 1400 X 30/7 X 630 Rotor Excavators in Agreement with the Natural Conditions Displayed By Jilț	121
Quarries	127
Florea, C., Florea, A., Nedelcu, I., <i>Physical and Mechanical Properties of the</i> <i>Materials Destined to Execute the Equipments wich Works in Explosion</i> <i>Hazard Medium</i>	133
Gîrniceanu G. Stăncioiu A. Vâlceanu F. Study of Von Mises Tension and	155
Distorsions at Hydraulic Machinery with Closed Chassy	130
Gîrniceanu G. Stăncioiu A. Pecingină G. The Dynamic Study of the Cutting	139
Flements from the Mining Industry Using the Finite Flement	145
Grigore N Considerations on Creeping Calculation of Pine-Line Systems	175
Part: 1	151
Grigore N Considerations on Creeping Calculation of Pipe-Line Systems	101
Part:2	155
Ilias, N., Copaci, I., Tănăsoiu, A., Factors Influencing the Railway Vehicle	100
Guidance Safety	159
Irimie, I.I., The Analytic Consolidation Solutions of Increase the Eluidodynamic Pneumatic Network's Stability	163
Ispas C Anania FD Mohora C Ivan I New Methods for Compensating	105
the Machining Errors by CAD Modelling of the Machining Surfaces on	1.00
Ity V Dymitroscov I Toth E Jolcoh S Determination of Londa Transmitted	109
to the Tower of the Extracting Installation ,,Auxiliary Well Jiet ["] E.M.	105
Lonea in the Case of the Application of the Safety Brake	185
Jurca, A.M., Paraian, M., Ghicioi, E., Vatavu, N., <i>The New European Concept</i>	
of Explosion Protection for the Non–Electrical Equipment Intended for	101
Use in Explosive Atmospheres	191
Working Mode of the Rotor Excavators in Operation at Jilt Sud and Jilt	105
Nord Lignite Open Casts	197
Ladányi, G., Sümegi, I., Virág, Z., Laboratory Rock Cutting Tests on Rock	200
Samples from Visonta South Mine	209
Lanchava, U., Ilias, N., Andras, I., Moraru, K., Neag, I., On the Ventilation of T_{res}	210
Iransport lunnels in the Presence of a Strong (Heavy) Fire	219
Index of Authors	777
Instructions for Authors	227
1	

4

INDEX OF AUTHORS

A nania, F.D.,	169	Iliaș, N.,	159, 219
Andraş, I.,	91, 219	Irimie, I.I.,	163
Andronescu, E.,	27	Ispas, C.,	169
B aciu, I.D.,	59	Ivan, I.,	169
Badoiu, D.,	5,9	Itu, V.,	185
Bădărău, R.,	59	J akab, Ş.,	185
Bălășoiu, V.,	59	Jădăneanţ, A.,	79
Bele, I.,	15	Jula, D.,	127, 197
Belingher, G.,	21	Jurca, A.M.,	191
Bîrsan, M.,	27	Kovacs. I	127, 197
Bîrsan, C.,	27	I adányi G	200
Bocîi, L.S.,	15	Lanchava O	209
Bolog, C.,	39, 47	Lanchava, O.,	219
Bolunduţ, I.L.,	53	I VI agyarı, A.,	109
Bordeaşu, I.,	59	Mihåilescu, S.,	127
Budiul-Berghian, A.,	65	Mohora, C.,	169
C ălin, G.,	71	Moraru, R.,	219
Călin, L.,	79	N an, M.S.,	127, 197
Ciortea, E.M.,	83	Neag, I.,	219
Copaci, I.,	159	Nedelcu, I.,	133
Cor, P.,	91	P all, G.,	27
Cristea, D.,	97	Părăian, M.,	191
D arie, M.,	103	Pecingină, G.,	145
Diaconescu, G.,	109	Praporgescu, G.,	127
Dimirache, G.,	113	Stăncioiu, A.,	139, 145
Dinescu, S.,	121	Stănilă, S.,	121
Dumitrescu, I.,	53, 127, 185	Sümegi, I.,	209
F lorea, A.,	133	T ănăsoiu, A.,	159
Florea, C.,	133	Tomus, O.B.,	197
G avrilă. T.,	79	Toth, F.,	185
Ghitulică. C.,	27	Trancău, M.,	71
Ghicioi, E.,	191	\mathbf{V} asiu, T.,	65
Gîrniceanu, G.,	139, 145	Vătavu N	191
Grigore, N.,	151, 155	Virág. Z.,	209
Gruneanțu, I.,	91	Vîlceanu. F	139
3 / /		Vîrgolici, H.M.,	113
		Zamfir, V.,	65, 103, 113

Annals of the University of Petroşani, Mechanical Engineering, 9 (2007), 228-229 228

INSTRUCTIONS FOR AUTHORS

THE TITLE OF THE PAPER WILL BE WRITTEN WITH CAPITAL LETTERS, CENTERED, AT 7.0 cm FROM THE UPPER EDGE OF A4 FORMAT, ALONG THE ENTIRE WIDTH, TIMES NEW ROMAN, 14 POINTS, BOLD.

 \cdot (14 points)

 \cdot (14 points)

The first name and the family name will be written with CAPITAL LETTERS, BOLD, CENTERED, 130 mm width, Times New Roman, 12 points, each name being followed by number, and in the footnote the didactic and scientific degree, the position and place of work of the authors (possibly fax, *E-mail*) are indicated, with italics, 130 mm width, Times New Roman, 11 points.

 \cdot (12 points)

 \cdot (12 points)

<Tab> Abstract: (Times New Roman, 10 points, bold) The Abstract will only be in English and will have between 50 and 100 words, arranged all over the entire width, single, left – right alignment, all over the width of the printed space, Times New Roman, 10 points.

 \cdot (10 points)

· (10 points)

 $\langle Tab \rangle$ Key words: (Times New Roman, 10 points, bold) 5 – 10 words, in English, along the entire width, Times New Roman, 10 points.

 \cdot (10 points)

 \cdot (10 points)

 \cdot (10 points)

<Tab> 1. THE TITLE OF THE CHAPTER IS WRITTEN WITH CAPITAL LETTERS, BOLD, TIMES NEW ROMAN, 11 POINTS AND WILL BE NUMBERED WITH ARABIC NUMBERS.

 \cdot (11 points)

<Tab> The paper text paragraphs will be left – right aligned. The lines of the entire text will be single spaced with Times New Roman fonts, size 11 points.

The paper will be edited in a language of international circulation (English, French, German) on A4 format (210 x 297), page setup: top 5,6 cm, bottom 4,6 cm, left 3,7 cm, right 3,7 cm, in WORD or WORDPERFET or WINDOWS. The size of the symbol is given next and is written in the instructions used to assist in editing the text. It indicates a blank line and does not show in the text of the paper, being obtained by pressing $\langle ENTER \rangle$. The size of a $\langle Tab \rangle$ is 1,27 cm. No blank line is left between the paragraphs. Between the last line before the title and the title of the chapter and between the title and the first next line a blank line is left for each.

¹ Professor, Ph.D. at the University of Petroşani

Annals of the University of Petroşani, Mechanical Engineering, 8 (2006), 228-229 229

<Tab> 1.1 Subchapter. Subchapters can be used in the text, numbered with the number of the chapter and a number showing the number of the subtitle within the chapter. The subchapters and the numbers are Times New Roman, 11 points, bold.

 \cdot (11 points)

The text is written in new paragraph and not continuing the subtitle, an 11 point blank line being left between the subtitle and the following text.

 \cdot (11 points)

2. PRESENTATION OF THE FIGURES



Fig. 1. Detachable bit

 \cdot (11 points)

Figures should be enclosed in the text in the order of their presentation, as far as possible on the page where reference is made to them. They shall be numbered with Arabic numbers. Black - and - white, high contrast figures are recommended. Photos can be used as well, but they should be of good quality, clarity and sufficient contrast. The figures will have a legend (name of the figure), which, along with the number, will be written underneath with Times New Roman, 10 points, centered as to the figure. The figures will be surrounded by text.

\cdot (11 points)

3. PRESENTATION OF THE TABLES

 \cdot (11 points)

The tables will be enclosed in the text, a 10 points blank line being left above and under the table, and will be numbered with Arabic numbers. Both the number and the explanations to the table are written with Times New Roman, 10 points, italic, for the number and bold for the explanation to the table, centered in the space of the table and above it. The table entries will be Times New Roman, 10 points, bold, and the data in the table will be Times New Roman, 10 points. The table will be $\frac{1}{2}$ points (0,02 cm), and the thick ones will be $\frac{3}{4}$... 1 points (0,03 ... 0,04 cm).

\cdot (11 points)

4. PRESENTATION OF THE MATHEMATICAL EQUATIONS

\cdot (11 points)

The mathematical equations will be with times New Roman, 11 points, center of the page and numbered on the right with Arabic numbers between round brackets. (8 points)-(8 point high>

$$X^2 + Y^2 = Z^2$$

(1)

· (8 points) < Blank line 8 point high> An 8 point high blank line is left between the last line before the relation and the relation and between the latter and the next first line.

The last page will be at least 2/3 full.

The pages of the paper will only be numbered by a pencil outside the printing space.

\cdot (11 points)

REFERENCES (will be written according to the model, Times New Roman 10 points).

 \cdot (10 points)

[1]. Marian I., Mecanizarea în minerit, Editura Tehnică, București, 1969.